

16ch DIGITAL RECORDER

DX-TL5000U

To meet the increasing demand for professional-grade digital video surveillance systems, Mitsubishi Electric has developed the DX-TL5000U Digital Recorder.

Designed to offer the best in digital video security recording, the DX-TL5000U is a high-performance, high-spec solution providing outstanding expandability and a wide range of features, plus user-friendly setup and simple operation.



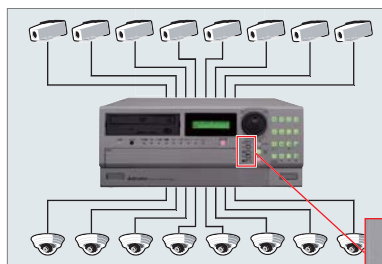


Versatile Monitoring

The DX-TL5000U offers superb versatility with support for numerous display options on one or more monitors.

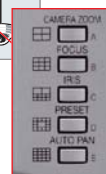
16ch multiplexer

Thanks to its 16-channel multiplexer, the DX-TL5000U can be hooked up to 16 cameras. You can choose between 5 different split-screen displays — handling 16, 13, 10, 9 or 4 video feeds simultaneously — and a full-screen display. Even when using the 16-way split-screen display, the DX-TL5000U can handle 60 pictures a second from each camera. This ensures a natural-looking live video display with smooth motion.



Connect up to 16 security cameras

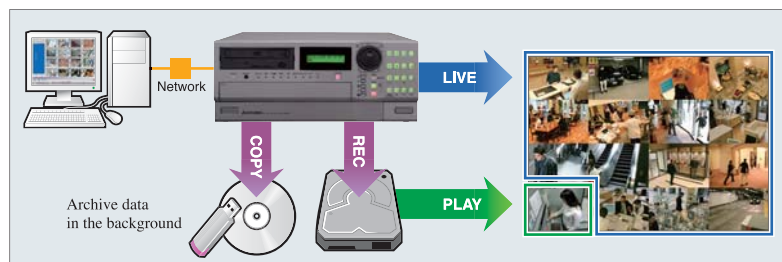
Split-screen display to monitor up to 16 video feeds



Front-panel buttons to select display format

Live monitoring capability	
NTSC Format	60pps x 16 cameras = 960pps

Triplex function



There's no need to interrupt operations just to check recorded footage. Triplex capability means that you can display live video feeds as well as previously recorded footage at the same time as the DX-TL5000U is recording. You can even archive material simultaneously. Pick any segment of the split-screen display for playback and use the jog-shuttle control to navigate.

Dual multiplexer output

The DX-TL5000U's dual multiplexer allows you to use two monitors, thus creating a powerful camera-monitoring setup with double split-screen capability. Live video and playback footage can be output separately to the two monitors. Alternatively, the output from a single camera can be displayed on both monitors but with a time shift — useful if you need to check many hours of video!



Twin monitor connectors

Using two monitors greatly enhances surveillance efficiency



Versatile Recording

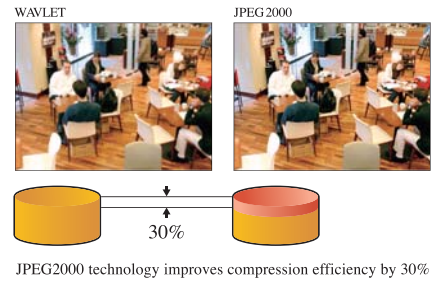
Choose from a wide range of recording options to handle various emergency events with enhanced reliability.

High-definition recording

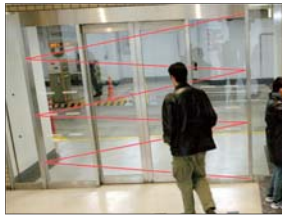
You can pick from 6 levels of recording quality. What appears as smooth video footage on playback is in fact recorded as a series of still pictures using JPEG2000 technology. The high efficiency of wavelet-based image compression ensures both high picture quality and a vast recording capacity: 1 terabyte of data can be stored using the 750-gigabyte* internal HD capacity of the DX-TL5000U, which can also record up to 4 audio channels in PCM format.

*Standard 500GB HDD plus one optional 250GB HDD

Video recording capability	
NTSC Format	15pps x 16 cameras = 240pps [60pps x 4 cameras]



Alarm recording



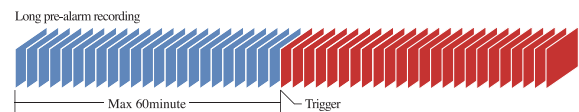
Triggered by motion detection — with parameters set individually for each of the 16 cameras that can be connected to the recorder — and/or by the activation of an external alarm sensor, the DX-TL5000U retroactively initiates alarm recording between 1 second and sixty minutes (user selectable). Alarm recording starts at a point up to three minutes prior to the alarm.

An external sensor can trigger alarm recording



Emergency recording

Emergency recording is activated by a device, such as a panic button, attached to a terminal on the rear panel. Whatever timed or programmed settings are in effect, emergency recording takes priority, cycling through all designated camera views automatically and recording at the highest quality setting so as to capture every detail.



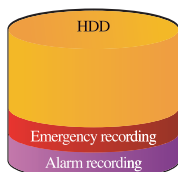
Long pre-alarm recording (LPA)

If long pre-alarm recording has been selected, emergency recording can start as early as 60 minutes prior to the emergency signal. This exclusive feature can provide ample information for later examination and analysis.



The DX-TL5000U is prepared for all emergencies

Alarm partition



The vital data produced by alarm or emergency recording is stored in a separate, reserved partition on the hard disk. This protects the video footage from the danger of being overwritten. To increase reliability even further, another hard disk can be used to mirror data: should one of the disks fail, the data will still be safe.

Reserved partition preserves data



Simple Setup

Setting up the DX-TL5000U is easy thanks to the setup wizard and on-screen menus, plus USB mouse support

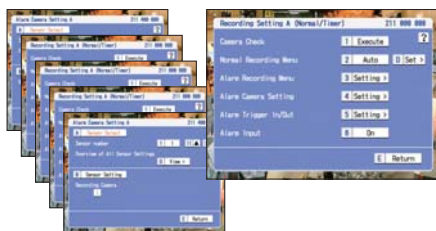
GUI menus

For both initial setup (using the automated wizard) and daily operations, the on-screen menus and USB mouse make everything so easy that you can forget the User Manual. A mouse-click on the screen will bring up the menus and, if you want, simple operating instructions. What's more, the transparency of the on-screen menus can be adjusted so as not to obscure real-time monitoring. You can also use the keys on the front panel for menu selection.



On-screen menus and mouse support

Recording setup

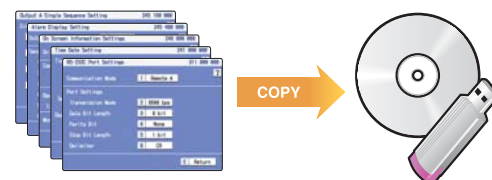


Set recording parameters separately for each camera

Wherever possible, the setup process has been automated: if you specify the recording interval and period, recording quality will be set automatically. But you are always free to fine-tune the settings — using the timer function, for example, to make more detailed recordings for specific periods of the day, or on certain days of the week. This can be combined with motion detection. As well as more effective surveillance, this flexibility ensures more efficient use of hard disk space.

Setup profile management

The more you fine-tune the settings on the DX-TL5000U, the better it can serve your needs. But it also becomes more important for you to store those settings. Fortunately, it's very easy to save the complete setup profile using external media, such as a USB memory stick or CD-R disc. You can thus restore setup information at any time, but also copy profiles to other units as a quick means of cloning and customizing.



Transfer setup profiles between recorders



Simple Operation

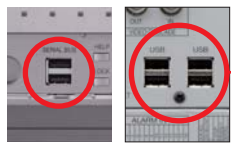
The DX-TL5000U's on-screen menus and USB mouse make day-to-day operations quick and easy.

Data archiving

Both video footage and still images can be easily archived using optical media, an internal hard disk, or an external hard disk connected to one of the 6 USB ports (front 2, rear 4). You can define precisely what you want to copy — an entire recording or just one portion, a specific camera or time period, etc. You can even "mirror" an entire hard disk to create a backup copy. And since viewer software is automatically copied with the data, both video footage and still images can be examined on any Windows computer.



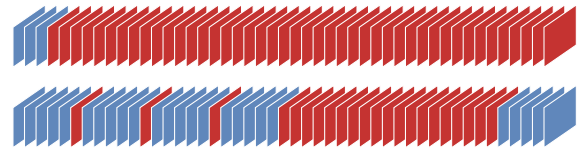
Copy data to USB memory stick, external HD, or DVD/CD media



DX-ZD5UE HDD extension units (option)

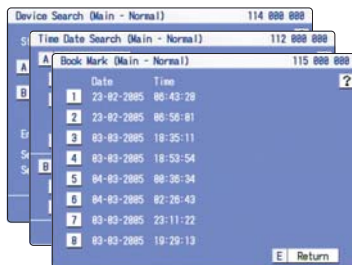


Up to 7 units



On-screen menus facilitate archiving operations

Searching recorded footage

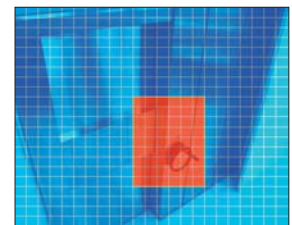


Simplicity extends to searching through all data recorded by the DX-TL5000U. Date-time search, start/end-point search, alarm list search — all of these are instantly available from the menus. Up to 8 bookmarks can be registered for instant retrieval. And motion detection search enables you to pinpoint when something suspicious happens, such as a file being removed from a restricted-access area.

Specify any day and time for immediate playback

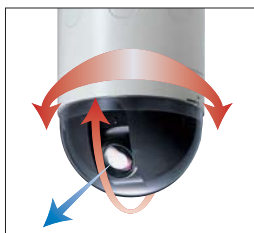
Motion detection settings

Instead of investing in motion detectors, you can rely on the DX-TL5000U to perform the same function using the output of the security cameras. Image-processing firmware inside the recorder is able to pick out visible changes within a specified area covered by any camera. You can even adjust time-base sensitivity to match either fast or slow movement.



Set the detection area with two mouse clicks

PTZ camera control



PTZ control (also available remotely over a network) lets you pan, tilt and zoom leading brand cameras. Using the number keys and jog-shuttle control on the DX-TL5000U, simply pick a camera and then move it as desired to get a better view of any area of interest. Operation is facilitated by use of the optional DX-KB5UE keyboard. You can also control focus, exposure, presets and auto-pan in this way.

PTZ cameras allow remote pan, tilt and zoom control

DX-KB5UE keyboard (option)



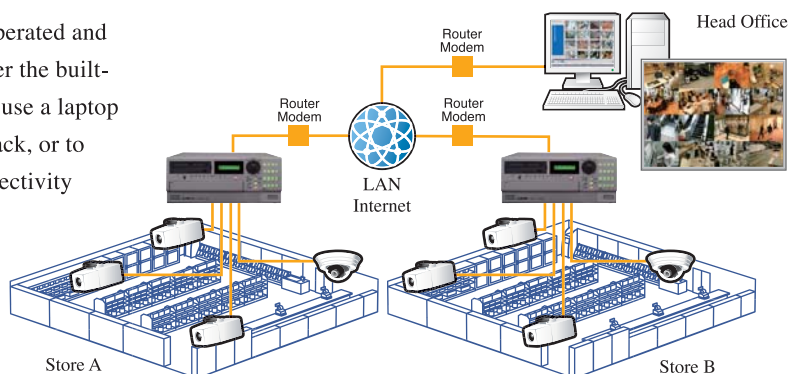


Network Connectivity

Monitoring and control of the DX-TL5000U is possible over a network (LAN & Internet).

Remote access

The DX-TL5000U can be remotely accessed, operated and configured via a LAN or the Internet using either the built-in web server or custom software. You can thus use a laptop computer to view live camera output, for playback, or to search through recorded footage. Network connectivity adds an extra dimension to your entire security operations.



Web server capability

The web server (with adjustable transmission speed to suit network bandwidth and traffic conditions) allows live monitoring, playback, searching through recorded footage, and also partial control of recorder settings. You can choose full-screen or split-screen displays, and select specific cameras. Also, e-mail alerts can be sent out automatically to ensure rapid response in an emergency.

Software (DX-PC55)

Offering an alternative and very powerful means of remote access, DX-PC55 software enables network-mediated configuration of virtually all DX-TL5000U settings as well as full control of its operation. This software offers many options, such as adjusting recording quality and recording rate, changing programmed recording times, SSL encoding and power on/off.



Superb Expandability

The DX-TL5000U offers outstanding expandability for enhanced recording and operating options.

High-capacity storage

The DX-TL5000U can be equipped with up to 3 internal hard disks, while the optional DX-ZD5UE HDD extension units can house 2 hard disks each. This means that a configuration with three 250GB internal HDDs and the maximum of 7 DX-ZD5UE units, each with two 250GB HDDs, would provide a total of 4.25 terabytes — sufficient to store high-quality, full-rate video footage for extended periods of emergency recording. The theoretical maximum is no less than 34 terabytes — enough storage for even the most extensive security system.



DX-ZD5UE HDD extension units (option)

Cascade connections

If you want to cover a very large facility from one location without requiring a large investment, you can make use of cascade connections between as many as 16 DX-TL5000U units. This setup enables the centralized monitoring of up to 256 security cameras using a single master unit.

PCI expansion slot, Enhanced connectivity

The rear panel features all of the connectors for the cameras, as well as for external sensors. You can use the PCI expansion slot to install a SCSI card and up to 6 external hard disks for additional storage, or attach an optional video card for XGA output to a standard computer display.



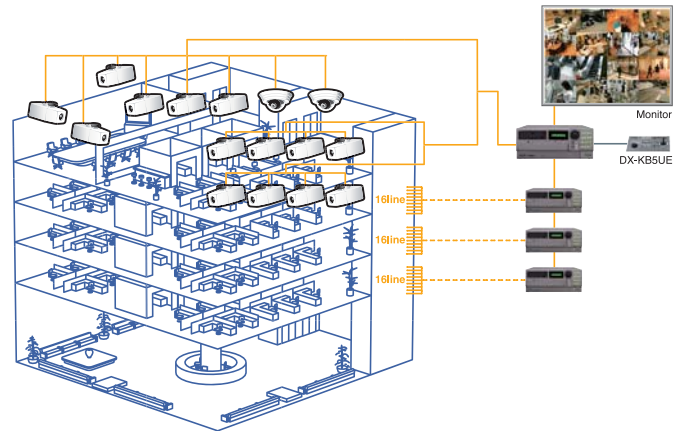
DX-GC5 Graphic Card (option)

At Work

The extraordinary versatility of the DX-TL5000U allows it to satisfy a wide variety of security demands reliably and efficiently.

Office buildings

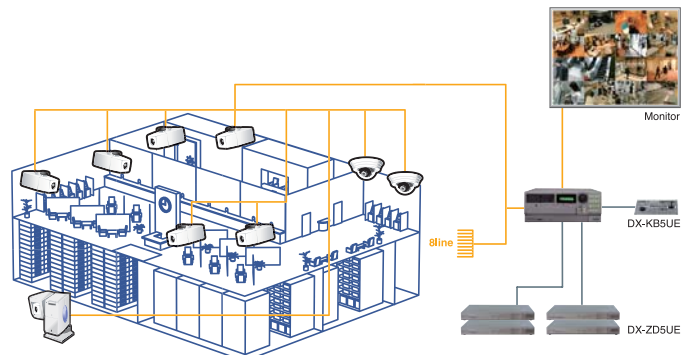
Anyone involved with the management of large office buildings will benefit from the high storage capacity and expandability of the DX-TL5000U. Multiple units can be linked via cascade connections for the monitoring and control of up to 256 cameras from a single location. Security cameras can be installed on each floor to cover corridors, lifts, doors and stairwells, with motion detection and other parameters customized for each camera.



Cascade connections enable wide-area, multi-site monitoring

Banks

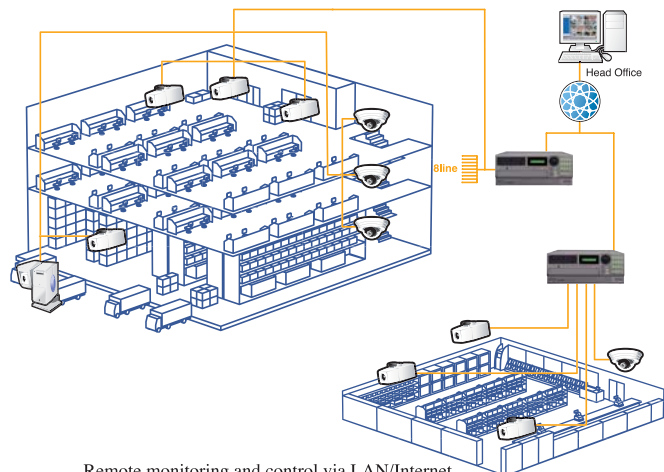
For any financial institution, security issues demand extra priority and the DX-TL5000U is more than capable of meeting the challenge. As well as offering customizable motion detection for each camera, it can be wired to a variety of external sensors and panic buttons, ensuring rapid response to alarms and emergencies. Especially important is its ability to store high-quality video footage — with up to 60 minutes of pre-alarm recording — on a reserved hard disk partition for later analysis.



Versatile High data storage options for extended recording capacity

Distribution centers

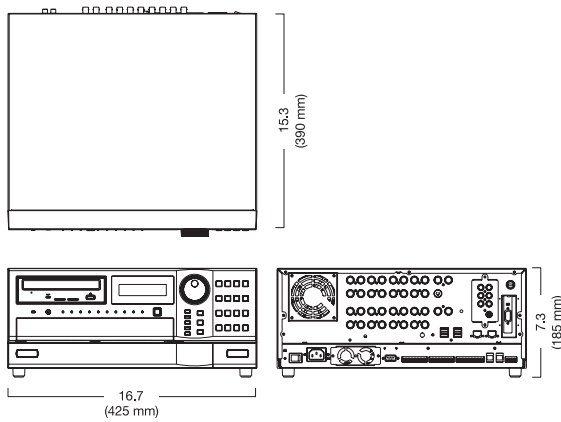
Increasingly distribution centers, whose original mission is to supply a network of stores, are also having to serve as nerve centers for centralized monitoring and management. The DX-TL5000U, however, can help keep costs down with such features as setup profile cloning, motion detection, and PTZ camera control. 24/7 remote surveillance can be carried out efficiently by one person using the recorder's built-in web server or DX-PC55 software.



Remote monitoring and control via LAN/Internet

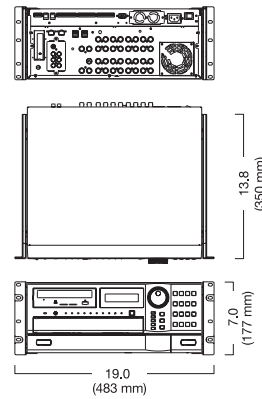
Dimensions

DX-TL5000U



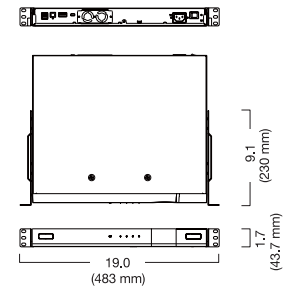
Option: Rack Mount

DX-RM5 [for DX-TL5000U]



Option: Rack Mount

DX-RM5(ZD) [for ZD5UE]

**Specifications**

Item	Description
Main Recording Medium	Two large capacity HDDs built in; additional 1 HDD can be added internally to increase on board storage.
Archiving Medium	Internal DVD/CD drive (DVD-R/RW, CD-R/RW)
	External Serial Bus I/F HDD
	SCSI I/F HDD (SCSI I/F Optional) USB memory (Copy only)
Color System	NTSC system
Signal Compression System	JPEG2000
Number of Picture Elements Processed	720 × 240 pixels : Field recording 720 × 480 pixels : Frame recording
Display rate	960 field/sec./display (60 field/ch)
Recording rate	240 field/sec.
Video Terminal	Input 16-channel input BNC : 1.0Vp-p 75Ω
	Through 16-channel through output BNC : 1.0Vp-p 75Ω (during AC power supply)
	Output A BNC 1-channel : 1.0Vp-p 75Ω S terminal 1-channel : Y 1.0Vp-p 75Ω / C 0.3Vp-p 75Ω RCA output 1-channel : 1.0Vp-p 75Ω
	Output B BNC 1-channel : 1.0Vp-p 75Ω
Audio Recording System	PCM
Audio Terminal	Input 4-channel RCA-Pin plug : 308mV(rms), 50kΩ
	Output RCA-Pin plug on rear : 308mV(rms), 1kΩ
Recording Interval	Can be set for each camera with function to estimate possible recording time
Alarm Recording	Recording time : 2sec, 5sec, 10sec, 15sec, 30sec, 45sec, 1min, 2min, 5min, 10min, 20min, 30min, 60min and contact
Pre-alarm Recording	Can be set from 1 sec. up to 1 hour (LPA)
Emergency Recording	Emergency input terminal (rear)
Power Failure Recovery Recording	Auto-re-start of unit after power failure
HDD Usage	Displays percentage of hard disk space used
Menu	GUI menu
Menu Language	English, French, and Spanish
Motion Detection Function	22(H) × 19(V) detection area setting, 5 steps detection sensitivity setting, recording start dot number setting
Clock Adjusting Function	Clock adjusting input (rear terminal)

Item	Description
Retrieval	Date & Time search, Alarm List search, Bookmark search, Motion search
Multiplexer Function	Split display : 4, 9, 10, 13, 16 split display (output A/B)
	Sequential display : 1, 4, 9 display (output A/B) Covert camera display Alarm display
Interface	Input 16-channel ALARM IN 1-channel REC IN 1-channel REC STOP IN 1-channel EMERGENCY 1-channel CLOCK ADJ
	Output 4-channel MODE OUT 16-channel ALARM OUT 1-channel CALL OUT 1-channel CLOCK ADJ OUT DC12V OUT
	RS232C 1-port for TL5000 control
	RS422/RS232C 1-port for Camera control
	RS485 1-port for Cascade control input, 1-port for output
	Remote Access 1-jack for wired remote control unit connection
	Serial Bus 2-port of USB jack on front, 4-port on rear
	LAN 2-port of 10/100Base-T/TX LAN-A for External Recording, LAN-B for communication
	Network WEB Live viewing, Playback, Search
	PC Software (DX-PC55) Live viewing, Playback (Access to multiple DVRs), Search, Image data downloading, PTZ Control, Alarm notification, Configuration, Recorder control, Remote relay output control
Power Supply	AC100-240V 50/60Hz
Power Consumption	1.0-0.45A (100-240V)
Operational Conditions	Temperature : 5°C-40°C
	Humidity : 30%-80% Altitude : Max 2000m
Dimensions (W × D × H)	16.7 × 15.3 × 7.3" (425 × 390 × 185mm)
Weight	31.3lbs (14.2kg) (capacity: 500GB)
Accessories	AC power code, USB mouse, Installer's manual, User's manual
Warranty	Five year parts and labor. Also includes five year Express Replacement Assistance (ERA) program that guarantees free replacement recorder shipped overnight for next business day delivery when and where available (24-hour replacement is for standard models only; derivative SKU P/NS may take longer).

Recording capacity (field recording without audio)

The below table shows the approximate recording time with a 500GB HDD. The camera operation setting is set to the same interval for all cameras.

d: days, h: hours

Picture grade \ Number of pictures /sec.	240	120	80	60	48	32	30	16	13	10	8	4	2	1	0.5	0.25	0.125
Super	14h	1d6h	1d22h	2d14h	3d6h	4d22h	5d6h	9d20h	12d4h	15d18h	19d18h	39d14h	79d4h	158d6h	316d14h	633d6h	1266d14h
Fine	18h	1d12h	2d6h	3d	3d20h	5d18h	6d2h	11d12h	14d4h	18d10h	23d2h	46d4h	92d10h	184d22h	369d20h	739d18h	1479d14h
High	22h	1d20h	2d18h	3d16h	4d14h	6d22h	7d8h	13d20h	17d2h	22d4h	27d18h	55d12h	111d2h	222d4h	444d10h	888d20h	1777d16h
Standard	1d2h	2d6h	3d10h	4d14h	5d18h	8d16h	9d6h	17d8h	21d8h	27d18h	34d18h	69d12h	139d	278d2h	556d4h	1112d10h	224d20h
Basic	1d12h	3d2h	4d14h	6d4h	7d16h	11d14h	12d8h	23d4h	28d12h	37d2h	46d8h	92d18h	185d14h	371d6h	742d12h	1485d	2970d2h
Long	2d6h	4d14h	6d22h	9d6h	11d14h	17d10h	18d14h	34d20h	42d20h	55d18h	69d16h	139d8h	278d18h	557d14h	1115d4h	2230d8h	4460d16h

*The picture number of Frame record setting becomes half against above record setting.

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